

Cisco Internetwork Design Course Outline

1. Introduction to Internetwork Design

- Internetwork Design Goals
- Key Issues
- Cost Trade-Offs
- Design Requirements
- Hierarchical Design
- Benefits
- Layered approach

2. Campus LAN Design

- Campus LAN Technology
- Ethernet
- Fast Ethernet
- Gigabit Ethernet
- Token Ring
- FDDI
- Comparison of interconnection methods
- Campus LAN Design Models
- Cabling issues
- Deploying VLANs
- Migrating to ATM

3. TCP/IP Network Design Considerations

- TCP/IP Addressing Design
- IP addressing and subnetting
- VLSM
- Prefix routing
- Multicast addressing
- Classless routing
- Security considerations
- Routing Protocol Design
- Route summarization
- Route redistribution
- Routing convergence
- Distance vector vs. link state
- OSPF Design
- Types of LSAs
- OSPF summarization
- OSPF areas - stubby vs. totally stubby
- Scalable OSPF internetworks
- OSPF backbone design
- IGRP/EIGRP Design
- IGRP/EIGRP characteristics and routing
- IGRP/EIGRP convergence
- EIGRP for IPX
- EIGRP convergence
- EIGRP route summarization

4. Desktop Protocol Design

- Client/server models
- Broadcast technology
- IPX Design
- AppleTalk and IP Windows Networking Design
- Operating Systems and Servers

5. WAN Design

- WAN Design Overview
- WAN Design Issues
- WAN Technology Options
- Dedicated vs. switched
- Circuit switched vs. packet/cell switched
- Using Dedicated Lines
- Frame Relay Design
- Access devices
- Topology options
- Switching operation/LMI
- RFC 1490
- DLCI mapping
- Nonbroadcast multiaccess (NBMA)
- X.25 Design
- Remote Access Design
- Point-to-point (PPP)
- Multilink point-to-point (MP)
- Multilink multichassis point-to-point (MMP)
- Security and Internet considerations
- ATM/Switched Multimegabit Data Service (SMDS) WAN Design
- Implementation in LANs/WANs
- PVCs/SVCs
- ATM routing
- LANE components
- SMDS configuration
- WAN Design with StrataCom Switches
- StrataCom nodes
- Network services
- Network design
- StrataSphere network management

6. SNA Design

- SNA Internetworking
- SDLLC conversion
- Data-Link Switching (DLSw)
- DLSw+
- SDLLC conversion
- Advanced Peer-to-Peer Networking (APPN)
- Cisco Channel Interface Processor (CIP)
- SNA Token Ring Internetworking

By gathering the combined expertise of several recognized network designers, Global Knowledge has created a fictional company that incorporates many real-world network design challenges. In our case studies you will be a member of a team that is responsible for designing and restructuring the company's network while focusing on real world issues such as cost, security, and scalability for future growth plans.

Case Study 1: Campus LAN Design - The Three Layer Model Work as a team to assess the company's network. Identify the three layers of the network. Formulate ideas and strategies for areas of improvement. Analyze ways to optimize use of existing hardware.

Case Study 2: Campus LAN Design

Analyze the network and develop a Campus LAN solution. Address realistic issues such as LAN Segmentation, VLANs, Route Switch Modules, Layer Three Switching, Wiring, and WAN Access.

Case Study 3: Campus LAN Design and IP Address Administration Assimilate several remote offices and sales offices into your new Campus LAN solution. Develop a new IP addressing policy that can be implemented across the entire network. Identify equipment requirements to implement these solutions.

Case Study 4: OSPF Design

Create an OSPF design with multiple areas for the network. Focus on area layout and Address Summarization. Explore potential pitfalls and methods to handle these issues.

Case Study 5: TCP/IP, Novell, AppleTalk, Windows, and DECNET Assess the network and develop long and short-term strategies for working with TCP/IP, Novell, AppleTalk, Windows, and DECNET.

Case Study 6: WAN Design

Create a new WAN design building upon the new Campus LAN designs from previous labs. Identify new requirements and assess needs of the WAN while simultaneously focusing on controlling costs.

Case Study 7: Bank Acquisition

The company has acquired a bank that is looking at a major network redesign. Determine the best methods for completing the network while considering the future plans to assimilate it into your network.

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